

CLAIMS

1. A system for assessing whether or not a subject's face is the face of a real person, the system comprising; control means for controlling optical radiation incident on the subjects face, detecting means for detecting optical radiation reflected at the subject's face, and processing means responsive to the control means for analysing the reflected optical radiation detected by the detecting means to assess whether or not the subject's face is that of a real person.

2. A system as claimed in claim 1 wherein said control means includes a controllable optical radiation source.

3. A system as claimed in claim 2 wherein said controllable optical radiation source is arranged to direct optical radiation sequentially under different illumination conditions onto the subject's face.

4. A system according to claim 3 wherein the controllable optical radiation source directs optical radiation onto the subject's face under a particular illumination condition, the detecting means detects the optical radiation reflected at the subject's face under the particular illumination condition, the controllable optical radiation source then directs optical radiation onto the subject's face under a different illumination condition and the detecting means

detects the optical radiation reflected at the subject's face under said different illumination condition.

5. A system according to claim 3 or claim 4 wherein the position of said controllable optical radiation source with respect to the subject's face is changed to provide the different illumination conditions.

6. A system accordingly to claim 3 or claim 4 wherein said controllable optical radiation source is arranged to direct light onto different regions of the subject's face to provide different illumination conditions.

7. A system according to claim 3 or claim 4 wherein the intensity of the optical radiation emitted by said controllable optical radiation source is changed to provide the different illumination conditions.

8. A system according to claim 3 or 4 wherein the wavelength of the optical radiation emitted by said controllable optical radiation source is changed to provide the different illumination conditions.

9. A system according to any of claims 3 to 8 wherein the processing means determines whether the subject's face is real by analysing a difference between the reflected optical radiation detected by the detecting means under the different illumination conditions.

10. A system as claimed in claim 1 wherein said control means comprises a controllable optical radiation source for illuminating the subject's face and means to direct the subject's gaze in different directions whilst the subject's face is illuminated.
11. A system as claimed in claim 10 wherein said means to direct comprises means to move a shape on a display screen placed in the subject's line of sight.
12. A system according to claim 10 or claim 11 wherein the detecting means detects optical radiation reflected at the subject's face each time the position of the subject's face changes, as the subject's gaze follows the means to direct.
13. A system according to claim 12 wherein the processing means determines whether the subject's face is real by analysing differences between the reflected radiation detected by the detecting means for each different position of the subject's face, as the gaze of the subject changes to follow the means to direct.
14. A system according to any preceding claim wherein the controllable optical radiation source operates in the visible region.

15. A system according to any of claims 1 to 13 wherein the controllable optical radiation source operates in the infra-red region.
16. A system according to any preceding claim wherein the controllable optical radiation source is a dedicated light source.
17. A system according to any of claims 1 to 15 wherein the controllable optical radiation source is a light emitting display device.
18. A system according to claim 17 wherein the light emitting display device is a computer monitor.
19. A system according to any preceding claim wherein the detection means is a camera.
20. A facial verification system including a system for assessing whether or not a subject's face is the face of a real person according to any preceding claim.
21. A method for assessing whether or not a subject's face is the face of a real person, the method comprising; causing optical radiation to be incident on the subject's face, detecting the optical radiation reflected at the subject's face,

and analysing the detected optical radiation to assess whether or not the subject's face is that of a real person.

22. A method as claimed in claim 20 wherein said optical radiation is provided by a control means, including a controllable optical radiation source.

23. A method as claimed in claim 22 wherein said controllable optical radiation source is arranged to direct said optical radiation sequentially under different illumination conditions onto the subject's face.

24. A method according to claim 23 including the steps of directing said optical radiation from the controllable optical radiation source onto the subject's face under a particular illumination condition, detecting the optical radiation reflected at the subject's face under the particular illumination condition, directing said optical radiation from the controllable optical radiation source onto the subject's face under different illumination conditions and detecting said optical radiation reflected at the subject's face under the different illumination conditions.

25. A method according to claim 23 or claim 24 wherein the position of the controllable optical radiation source with respect to the subject's face is changed to provide the different illumination conditions.

26. A method according to claim 23 or claim 24 wherein the controllable optical radiation source is arranged to direct optical radiation onto different regions of the subject's face to provide different illumination conditions.

27. A method according to claim 23 or claim 24 wherein the intensity of the optical radiation emitted by the controllable optical radiation source is changed to provide the different illumination conditions.

28. A method according to claim 23 or claim 24 wherein the wavelength of the optical radiation emitted by the controllable optical radiation source is changed to provide the different illumination conditions.

29. A method according to any of claims 23 to 28 including the step of determining whether the subject's face is real by analysing the difference between the reflected optical radiation detected under the different illumination conditions.

30. A method as claimed in claim 21 including the step of directing the subject's gaze in different directions whilst the subjects face is illuminated by said optical radiation.

31. A method as claimed in claim 30 wherein the step of directing the subject's gaze is performed by moving a shape on a display screen placed in the subject's line of sight.

32. A method according to claim 30 or claim 31 wherein said optical radiation reflected by the subject's face is detected each time the position of the subject's face changes, as the subject's gaze is directed in different directions.

33. A method according to claim 32 including the step of determining whether the subject's face is real by analysing the differences between the reflected radiation detected for each different position of the subject's face, as the gaze of the subject is directed in different directions.

34. A method according to any of claims 21 to 33 wherein the optical radiation provided on the subject's face is in the visible region.

35. A method according to any of claims 21 to 33 wherein the optical radiation provided on the subject's face is in the infra-red region.

36 A system substantially as herein described with reference to the accompanying figure.

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